

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

PRG



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,092	11/16/2001	William C. Athas	APL-P2682	4770

22835 7590 06/01/2004

PARK, VAUGHAN & FLEMING LLP  
 508 SECOND STREET  
 SUITE 201  
 DAVIS, CA 95616

EXAMINER
----------

PERVEEN, REHANA

ART UNIT	PAPER NUMBER
----------	--------------

2116

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/991,092

Applicant(s)

ATHAS, WILLIAM C.

Examiner

Rehana Perveen

Art Unit

2116

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dewa et al, Patent No. 6,230,279, in view of Godfrey, Patent No. 6,091,255.

As to claim 1, Dewa et al teach a method for temporarily increasing an operating frequency of an electronic circuit beyond a maximum sustainable operating frequency (col. 11 lines 7-13), receiving a request for a higher operating frequency for the electronic circuit (col. 3 lines 27-30), and increasing the operating frequency of the electronic circuit to a frequency that is greater than the maximum sustainable operating frequency for a period of limited duration (col. 11 lines 7-23), wherein the period of duration is short enough to ensure that a temperature increase, caused by increasing the operating frequency, does not raise an operating temperature of the electronic circuit above a maximum operating temperature (col. 1 lines 14-36, col. 2 lines 4-13, and col. 4 lines 5-25).

However, Dewa et al do not **explicitly** teach determining a thermal energy level of a cooling system for the electronic circuit and allowing the frequency increase if the thermal energy level is below a threshold level. Dewa et al **implicitly** teach determining a thermal energy level of a cooling system for the electronic circuit and allowing the frequency increase if the thermal energy level is below a threshold level (the OS makes adjustment between the requested processing speed and an environment condition including power consumption, col. 4 lines 8-25).

Godfrey **explicitly** teaches determining a thermal energy level of a cooling system for the electronic circuit and allowing the frequency increase if the thermal energy level is below a threshold level (col. 2 lines 2-24 and col. 5 lines 15-22).

It would have been obvious for one of ordinary skill in the art at the time of the claimed invention to combine the teachings of Dewa et al and Godfrey because both are commonly directed to processing unit's processing speed with respect to temperature monitoring environment and Godfrey's determination of thermal energy level or temperature as a result of tasking request for frequency considerations, when incorporated into Dewa et al's system, would have enabled improved integrity by further limiting frequency considerations based on temperature considerations and allowing damage prevention.

Art Unit: 2116

As to claim 2, Dewa et al teach the electronic circuit is a computer system (col. 1 lines 14-19).

As to claim 3, Dewa et al teach receiving the request from one of an application running on the computer system (user of an application, col. 4 lines 8-25), an operating system of the computer system (col. 4 lines 20-25), and a controller that detects an increase in computational workload by monitoring a current sensor within the computer system (col. 10 line 63 – col. 11 line 5).

As to claim 4, Godfrey teaches measuring the thermal energy level of the cooling system involves measuring a temperature of a heat sink within the cooling system (col. 2 lines 2-24 and col. 5 lines 15-22).

As to claim 5, Dewa et al teach increasing the operating frequency for an allotted time (col. 11 lines 1-13).

As to claim 6, Dewa et al teach increasing the operating frequency until a command is received to reduce the operating frequency (col. 6 lines 33-47 and col. 11 lines 1-23).

As to claim 7, Godfrey teaches increasing the operating frequency of the electronic circuit to the maximum sustainable operating frequency if the thermal energy

Art Unit: 2116

level of the cooling system is not below the threshold value (col. 2 lines 2-24 and col. 5 lines 15-22). Dewa et al also teach increasing the operating frequency of the electronic circuit to the maximum sustainable operating frequency if the thermal energy level is not below the threshold value (col. 8 lines 13-36).

As to claim 8, neither Dewa et al nor Godfrey expressly teach increasing an operating voltage of the electronic circuit for the period of limited duration. However, one of ordinary skill in the art at the time of applicant's claimed invention would have readily recognized that such increase of operating voltage in order to increase frequency have been quite well known in the prior existing systems.

As to claim 9, Dewa et al teach lowering the operating frequency of the electronic circuit to the maximum sustainable operating frequency after the period of limited duration is over (col. 11 lines 7-13).

As to claim 10, Dewa et al teach lowering the operating frequency to a lower power-conserving frequency when the electronic circuit is not busy, whereby the power-conserving frequency further decreases the thermal energy of the cooling system and thereby provides a longer period of boosted frequency when needed (col. 1 lines 14-36 and col. 4 lines 8-25).

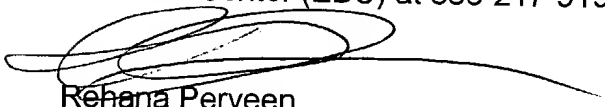
Art Unit: 2116

Claims 11-23 are directed to the system implementing the method of claims 1-10, and claims 24-33 are directed to the computer readable medium of method claims 1-10. Dewa et al and Godfrey, in combination, teach the method as set forth in claims 1-10. Therefore, Dewa et al and Godfrey, in combination, also teaches the system as set forth in claims 11-23. Further, Dewa et al and Godfrey, in combination, also teaches the computer readable medium as set forth in claims 24-33.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rehana Perveen whose telephone number is 703-305-8476. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on 703-308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Rehana Perveen  
Primary Patent Examiner  
Technology Center 2100